

The following export control warning notice is to be furnished with any DD Form 1692, DD Form 1693, DD Form 1694, and DD Form 1695 which is marked "WARNING: EXPORT CONTROLLED", as required by DoD Directive 5230.25.

WARNING: THIS DOCUMENT CONTAINS TECHNICAL DATA WHOSE EXPORT IS RESTRICTED BY THE ARMS EXPORT CONTROL ACT (TITLE 22, U.S.C. SEC 2751 et seq.) OR THE EXPORT ADMINISTRATION ACT OF 1979, AS AMENDED, TITLE 50, U.S.C., APP 2401 et seq. VIOLATION OF THESE EXPORT LAWS ARE SUBJECT TO SEVERE CRIMINAL PENALTIES. DISSEMINATE IN ACCORDANCE WITH THE PROVISIONS OF DoD DIRECTIVE 5230.25.

NOTICE TO ACCOMPANY THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA

1. Export of information contained herein, which includes, in some circumstances, release to foreign nationals within the United States, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulation (ITAR), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.
2. Under 22 U.S.C. 2778 the penalty for unlawful export of items or information controlled under the ITAR is up to 2 years imprisonment, or a fine of \$100,000, or both. Under 50 U.S.C., Appendix 2401, the penalty for unlawful export of items or information controlled under the EAR is a fine of up to \$1,000,000, or five times the value of the exports, whichever is greater; or for an individual, imprisonment of up to 10 years, or a fine of up to \$250,000, or both.
3. In accordance with your certification that establishes you as a "certified US contractor," unauthorized dissemination of this information is prohibited and may result in disqualification as a certified US contractor, and may be considered in determining your eligibility for future contracts with the Department of Defense.
4. The US Government assumes no liability for direct patent infringement, or contributory patent infringement or misuse of technical data.
5. The US Government does not warrant the adequacy, accuracy, currency, or completeness of the technical data.
6. The US Government assumes no liability for loss, damage, or injury resulting from manufacture or use for any purpose of any product, article, system, or material involving reliance upon any or all technical data furnished in response to the request for technical data.
7. If the technical data furnished by the Government will be used for commercial manufacturing or other profit potential, a license for such use may be necessary. Any payments made in support of the request for data do not include or involve any license rights.
8. A copy of this notice shall be provided with any partial or complete reproduction of these data that are provided to qualified US contractors.

DOCUMENT SUMMARY LIST

Item: M18A1 GAS FILTER
NSN: 4240-01-365-0982
Control Number/PRON: C29CABXX

Identifies all first tier documents (cited in SOW) (applicable DIDs). Also included are all referenced documents (2nd, (includes DID block 10 references), 3rd and lower tier) which have been tailored.

DOCUMENT CATEGORY:

CATEGORY 0 - Unless otherwise specified in the solicitation, contract, or contract modifications, all documents are for guidance and information only.

CATEGORY 1 - The requirements contained in the directly cited document are contractually applicable to the extent specified. All referenced documents are for guidance and information only.

CATEGORY 2 - The requirements contained in the directly cited document and the reference documents identified in the directly cited document are contractually applicable to the extent specified. All subsequently referenced documents are for guidance and information only.

CATEGORY 3 - Unless otherwise specified in the solicitation, contract or contract modification, all requirements contained in the directly cited document and all reference and subsequently referenced documents are contractually applicable to the extent specified.

Document Number (Contract Reference) Applicable Tailoring	Document Title	Document Date/ Document Category
1a. MIL-STD-973	Configuration Management	17 Apr 92 Cat 2

See section C clause(s) titled: Value Engineering Change Proposals, Engineering Change Proposals, Deviation and/or Ozone-Depleting Substances.

In the application of MIL-STD-973 Paragraphs 5.4.3, 5.4.4 and 5.4.8 apply, and are tailored as follows:

(1) Page 53, para 5.4.3.4., Delete "a contractor designed form, or a letter" in the first sentence.

(2) Page 53, para 5.4.3.3.2a., Line 5, add "or size" after "weight".

(3) Page 53, Delete para 5.4.3.5., and replace by, "Unless otherwise specified in the contract, requests for critical deviations should be approved or disapproved within 30 calendar days of receipt by the Government and for all other deviations within 60 calendar days of receipt by the Government."

(4) Para 5.4.3.5.1. Minor deviations.

Line 3. Delete "...by the activity...Class II change" and insert "by the Contracting Officer."

(5) Page 55, para 5.4.4.3.2a., Line 7, add "or size" after "weight".

(6) Page 56. Delete paragraph 5.4.4.5 and replace by "Unless otherwise specified in the contract requests for critical waivers should be approved or disapproved within 30 calendar days of receipt by the Government and for all other RFWs within 60 calendar days of receipt by the Government."

(7) Para 5.4.4.5.1. Minor waivers.
 Lines 4 and 5. Delete "...Contract Administration Office (CAO)." Insert "...Configuration Manager and a Government Contracting Officer."

(8) Page 61, para 5.4.8.3.4., in line 6 add "or size" after "weight".

(9) Page 61, Add new para 5.4.8.3.4.1., "An RFD shall be supported by test data and analysis, where appropriate, and provided to support the decision regarding acceptance of the nonconformance."

(10) Page 61, Delete para 5.4.8.3.5. and replace by, "Unless otherwise specified in the contract, deviations are approved and authorized only by the Contracting Officer. Critical deviations should be processed within 30 calendar days of receipt by the Government and all other RFDs processed within 60 calendar days of receipt by the Government."

(11) Page 62, para 5.4.8.4, Delete lines 7 thru 10 and replace with "standard. All RFWs shall be submitted as specified in the contract for approval or disapproval and acceptance or rejection by the authorized Contracting Officer."

(12) Page 62, para 5.4.8.4.4., on line 6 add "or size" after "weight".

(13) Page 62, Add new para 5.4.8.4.4.1., "an RFW shall be supported by test data and analysis, where appropriate, and provided to support the decision regarding acceptance of the nonconformance."

1b. Interim Notice 3 (DO)	Configuration Management	13 Jan 95 Cat 2
1c. DI-CMAN-80639B (seq A001)	Engineering Change Proposal	13 Jan 95 Cat 2
1d. DI-CMAN-80640B (seq A002)	Request for Deviation	13 Jan 95 Cat 2
1e. DI-CMAN-80641B (seq A003)	Request for Waiver	13 Jan 95 Cat 2
1f. DI-CMAN-80642B (seq A004)	Notice of Revision	13 Jan 95 Cat 2
2. ANSI/ISO/ASQC Q9002 or equivalent	Model for Quality Assurance in Production, Installation & Servicing	18 Jul 94
3a. NCSL Z540-1 (ES7010)	General Requirements for Calibration Laboratories and Measuring and Test Equipment	30 Aug 94
ISO 10012-1 (ES7010)	OR Quality Assurance Requirements for Measuring Equipment, Part 1: Metrological Confirmation System	1992
3b. DI-QCIC-81006 (DD Form 1423)	Special Inspection Equipment Descriptive Documentation	11 Sep 89 Cat 1

ADDRESS CODE DISTRIBUTION - for ECPs/RFDs/RFWs/VECPs
(Configuration Management)

1. Concurrent distribution of Engineering Change Proposals (ECPs), Request for Deviations (RFDs), Request for Waivers (RFWs) or Value Engineering Change Proposals (VECPs) shall be submitted by the Contractors as follows:

2. The contractor shall provide the **original** plus 1 copy to:

Commander, Soldier and Biological Chemical Command
ATTN: AMSSC-HB-CPT (RI)
Rock Island, IL 61299

3. Provide one copy to:

a. (Design agency)

Commander, Soldier and Biological Chemical Command
ATTN: SCBRD-ENP-A
Building E3549
Aberdeen Proving Ground, MD 21010-5423.

b. (Contracting Officer)

Director, Armament and Chemical Acquisition, and Logistics Activity
ATTN: AMSTA-AC-PCH
Rock Island, IL 61299

c. Administrative contracting officer

5. For **VECPs only**, provide one copy to each Value Engineering Office:

a. Commander, Soldier and Biological Chemical Command

ATTN: SCBRD-ENL-P
Aberdeen Proving Ground, MD 21010-5423.

b. Cdr, Soldier and Biological Chemical Command

ATTN: ANSSC-HB (RI)
Rock Island, IL 61299.

6. When ECPs, RFDs or RFWs are determined to be Urgent, Critical and/or Schedule impacting, an action copy should be provided via data facsimile (FAX) to SCBRD-ENP-A (EW) at 410-436-3323 and to AMSSC-HB (RI) at 309-782-3126. This transmission is to be immediately followed with the usual hard copy mailing.

(ENC 14)

LIST OF ADDRESSES

(see block 14 of DD form 1423 for symbols that apply)

Commander

U.S. Army Industrial Operations Command

ATTN: AMSIO-_____

Rock Island, IL 61299-6000

Director

U.S. Army Armament Research, Development and Engineering Center

ATTN: AMSTA-AR-QAW-A

Rock Island, 61299-7300

Director

Armament and Chemical Acquisition, and Logistics Activity

ATTN: AMSTA-AC-PCH_____

Rock Island, IL 61299-7630

Commander

Soldier and Biological Chemical Command

ATTN: AMSSC-HB-CPT (RI)

Rock Island, IL 61299

Commander

Soldier and Biological Chemical Command

ATTN: AMCPM_____

Aberdeen Proving Ground, MD 21010-5423

Commander

Soldier and Biological Chemical Command

ATTN: SCBRD-ENP-A_____

Aberdeen Proving Ground, MD 21010-5423

Commander

U.S. Army Armament Research, Development and Engineering Center

ATTN: AMSTA_____

Building 19

Picatinny Arsenal, NJ 07806-5000

(for reference purposes only)

INCH-POUND

MIL-DTL-51193D(EA)

SUPERSEDING

MIL-F-51193C

13 December 1989

DETAIL SPECIFICATION

FILTER, GAS, 10 CFM, M18A1

This specification is approved for use by the U.S. Army Edgewood Research, Development and Engineering Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers one type and one size of toxic gas filter.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to insure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of De-

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Technical Director, U.S. Army Edgewood Research, Development and Engineering Center, ATTN: SCBRD-ENE-S, Aberdeen Proving Ground, MD 21010-5423 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4240

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

MIL-DTL-51193D

fense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-F-46032 - Fungus-Resistant Treatment for Sandbags; Copper Processes

STANDARDS

FEDERAL

FED-STD-191 - Textile Test Methods

DEPARTMENT OF DEFENSE

MIL-STD-1168 - Ammunition Lot Numbering

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

U.S. ARMY EDGEWOOD RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

PURCHASE DESCRIPTIONS

EA-C-1704 - Carbon, Activated, Impregnated, Copper-Silver-Zinc-Molybdenum-Triethylenediamine (ASZM-TEDA)

DRAWINGS

5-19-2300 - Filter, Gas, 10 CFM, M18A1
E136-41-1755 - Tester, Filter Life, 12 CFM, Q223, Assembly

(Copies are available from Technical Director, U.S. Army Edgewood Research, Development and Engineering Center, ATTN: SCBRD-ENE-S, Aberdeen Proving Ground, MD 21010-5423.)

(Copies are available from Commander, U.S. Army Rock Island Arsenal, ATTN: SIORI-ITD, Rock Island, IL 61299-5000.)

MIL-DTL-51193D

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issue of the documents cited in the solicitation (see 6.2).

ASTM STANDARDS

D2867 — Standard Test Methods for Moisture in Activated Carbon

(Application for copies should be addressed to ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

AIR-CONDITIONING AND REFRIGERATION INSTITUTE

ARI STANDARD 700 — Standard for Specification for Fluorocarbons and Other Refrigerants

(Application for copies should be addressed to ARI, 4903 North Fairfax Drive, Arlington, VA 22203)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Materials. All materials cited on Drawing 5-19-2300 and on the subsidiary drawings shall conform to the specifications listed thereon or to the specific characteristics set forth on the drawings.

3.1.1 Cotton Cloth.

(a) **Mildew resistance.** The cotton cloth shall be made mildew resistant in accordance with MIL-F-46032, using Type III, method optional process except the leaching shall be omitted. No visible growth of mildew shall be evident when tested in accordance with method 5750 of FED-STD-191.

(b) **Water repellency.** The cotton cloth shall have a minimum spray rating of 50.0 when tested in accordance with 5526 of FED-STD-191.

3.1.2 Components. All components of the gas filter shall conform to the specifications and Drawing 5-19-2300 and subsidiary drawings.

MIL-DTL-51193D

3.2 Assembly. The gas filter shall be assembled as specified on Drawing 5-19-2300.

3.3 Moisture content of gas filter. The moisture content of the filter immediately before packaging shall not exceed 3.0 percent when tested as specified in 4.3.6.3.

3.4 Air flow resistance. The air flow resistance of the filter shall not exceed 1.7 inches (43 millimeters) of water at a 10 standard cubic feet per minute (scfm) (0.75 lb/min) (340 gm/min) airflow with an air stream temperature of 21°C (70°F) and a barometric pressure of 760 millimeters (mm) Hg when tested as specified in 4.3.6.1.

3.5 Filter leakage. The filter shall not leak when a concentration of 1000 parts per million (ppm) of R-134a (1,1,1,2 Tetrafluoroethane) or R-12 (Dichlorodifluoromethane) refrigerant is introduced at the inlet of the filter at a flow rate of 2.0 scfm when tested in accordance with 4.3.6.2. The refrigerant (R-134a or R-12) shall conform to the characteristics of ARI STANDARD 700 and shall be dispersed in air at $24 \pm 3^{\circ}\text{C}$ ($75 \pm 5^{\circ}\text{F}$) and 50 percent maximum relative humidity (RH). A filter leak shall be defined as the detection of 1 ppm or more of R-134a or R-12 in the effluent air within two minutes after the introduction of the refrigerant at the inlet of the filter.

3.6 Rough handling. Sample filters shall be rough handled as specified in 4.3.6.4. Sample filters shall show no evidence of cracks, dents, or charcoal granule leakage upon visual inspection.

3.7 DMMP value (destructive). After meeting the requirements of 3.6, the filter shall have a DMMP gas life of not less than 100 minutes at rated flow (10 scfm) when subjected to a DMMP challenge of 3.0 ± 0.2 milligrams per liter with an air stream temperature of $27 \pm 5^{\circ}\text{C}$. Break concentration shall be 0.04 micrograms per liter. This requirement shall be met when tested in accordance with 4.3.6.5.

3.8 CK value (destructive). After meeting requirements of 3.6, the filter shall have a CK gas life of no less than 25 minutes at rated flow (10 scfm) when subjected to a CK challenge concentration of 4.0 ± 0.2 mg/l, with an air stream relative humidity of 80 ± 3 percent and air stream temperature of $24^{\circ} \pm 5^{\circ}\text{C}$. Break concentration shall be 8 micrograms per liter. Filters

MIL-DTL-51193D

shall be equilibrated to 80 percent R.H. prior to test. This requirement shall be met when tested in accordance with 4.3.6.6.

3.9 First Article. When specified (see 6.2), a sample shall be subjected to the first article inspection in accordance with 4.2.

3.10 Workmanship. The filter shall be free from foreign matter and damage such as chipped or bent sections.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- (a) First article inspection (see 4.2)
- (b) Conformance inspection (see 4.3)

4.2 First article inspection.

4.2.1 Sample. The first article sample shall consist of 14 packaged filters manufactured using the same methods, materials, equipment, and processes as will be used during regular production. The first article sample shall be submitted for inspection and approval in accordance with the terms of the contract.

4.2.2 Inspection Procedure. As determined by the Government, the sample first article items may be subjected to any or all of the examinations and tests specified in this specification and be inspected for compliance with any or all of the requirements of the applicable drawings and special packaging instructions.

4.2.2.1 For examination. The sample filters shall be examined for all requirements of the applicable drawing and this specification.

4.2.2.2 For test. A sample of carbon shall be taken during the filling of the first, seventh and fourteenth filters and placed in an open container. Those samples of carbon shall be exposed to the same conditions of temperature and humidity as their associated filters. Each filter shall be tested for air flow resistance (4.3.6.1) and leakage (4.3.6.2). Following leakage testing, filters shall be packaged using the same methods, materials, equipment, and processes as will be used during regular production. Concurrent with or immediately following the packaging of the filters corresponding to each carbon sample, each of the three carbon samples shall be tested for moisture content in accordance with 4.3.6.3. If any carbon sample fails to meet the moisture requirement, the lot of filters represented by the sample shall be dried in accordance with 4.3.6.3, protected from moisture (e.g. repackaged), and moisture content of charcoal samples from filters shall be re-determined. The packaged sample filters shall then be forwarded to the Government, and subjected to rough handling in accordance with 4.3.6.4. Seven of the 14

MIL-DTL-51193D

filters shall be tested by the Government in accordance with the DMMP value test (4.3.6.5) and the other seven filters shall be tested in accordance with the CK value test (4.3.6.6). Any filter failing leakage or air flow resistance requirements shall be rejected and removed from the lot. If any sample filter from the lot fails to meet the requirements for rough handling, DMMP value, or CK value, the lot represented shall be rejected.

4.2.3 Acceptance criteria. If any first article sample item fails to comply with any of the applicable requirements, the first article sample shall be rejected. The Government reserves the right to terminate inspection upon any failure to comply with any of the requirements. The contractor shall obtain written approval from the contracting activity prior to proceeding with regular production.

4.3 Conformance inspection.

4.3.1 Lotting. A lot shall consist of the filters produced by one manufacturer on one production line, from the same materials, with the same process, and without a break in production of more than 10 calendar days. However, any one lot of filters shall contain no more than one lot of carbon, and a new lot shall be started whenever any carbon filling or final assembly process equipment change is made. Each lot shall be identified and controlled in accordance with MIL-STD-1168.

4.3.2 Sampling.

4.3.2.1 For examination. Sampling of packaged filters shall be conducted in accordance with the classification of characteristics in 4.3.5 and, when specified, table I. Samples shall be selected at random.

4.3.2.2 For tests. Sample sizes for DMMP tests and for CK tests shall be as follows:

TABLE I. Sampling Plan for Filter Gas Life

Lot size	DMMP sample size	CK sample size
160 to 500	8	8
501 to 3200	13	13
3201 and higher	15	15

MIL-DTL-51193D

4.3.3 Inspection procedure.

4.3.3.1 For examination. Sample items (filters) shall be examined and tested in accordance with the classification of characteristics in 4.3.5. Failure of any sample item to conform to any characteristic in the classification of characteristics based on the sampling and acceptance criteria specified therein shall be cause for rejection of the lot represented.

4.3.3.2 For test. A sample of carbon shall be taken during the filling of the first and last filter manufactured each day and placed in an open container. Those samples of carbon shall be exposed to the same conditions of temperature and humidity as their associated filters. Each filter shall be tested for air flow resistance (4.3.6.1) and leakage (4.3.6.2). Following leakage testing, filters shall be packaged. Concurrent with or immediately following the packaging of the filters corresponding to each carbon sample, the carbon sample shall be tested for moisture content in accordance with 4.3.6.3. If any carbon sample fails to meet the moisture requirement, the lot represented by the sample shall be dried in accordance with 4.3.6.3, protected from moisture (e.g. repackaged), and moisture content of charcoal samples from filters shall be re-determined. Packaged sample filters shall then be forwarded to the Government and subjected to rough handling in accordance with 4.3.6.4. Following rough handling, the Government shall conduct gas life tests on sample filters (see Table I) in accordance with 4.3.6.5 and 4.3.6.6. Any filter failing leakage or air flow resistance requirements shall be rejected and removed from the lot. If any sample filter from the lot fails to meet the requirements for rough handling, DMMP value, or CK value, the lot represented shall be rejected.

4.3.4 Inspection characteristics. Critical characteristics are characteristics whose nonconformance to specified requirements is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the product or whose nonconformance to specified requirements is likely to prevent performance of the tactical function of a major end item. Major characteristics are characteristics whose nonconformance to specified requirements is likely to result in failure or to reduce materially the usability of the item for its intended purpose. Minor characteristics are characteristics whose nonconformance to specified requirements is not likely to reduce materially the operation or usability of the item for its intended purpose.

4.3.5 Classification of characteristics. Conformance examinations and tests shall be as specified in the following classification of characteristics paragraphs. When specified herein, accept on 0 and reject on 1 attributes sampling inspection shall be performed on the designated characteristics using the stated levels in table II for selection of sample sizes.

MIL-DTL-51193D

TABLE II. Sampling

Lot size	Inspection levels and sample sizes										
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
2 to 8	*	*	*	*	*	*	*	*	5	3	2
9 to 15	*	*	*	*	*	*	13	8	5	3	2
16 to 25	*	*	*	*	*	20	13	8	5	3	3
26 to 50	*	*	*	*	32	20	13	8	5	5	5
51 to 90	*	*	*	50	32	20	13	8	7	6	5
91 to 150	*	*	125	50	32	20	13	12	11	7	6
151 to 280	*	*	125	50	32	20	20	19	13	10	7
281 to 500	*	315	125	50	48	47	29	21	16	11	9
501 to 1200	*	315	125	75	73	47	34	27	19	15	11
1201 to 3200	1250	315	125	116	73	53	42	35	23	18	13
3201 to 10000	1250	315	192	116	86	68	50	38	29	22	15
10001 to 35000	1250	315	294	135	108	77	60	46	35	29	15
35001 to 150000	1250	490	294	170	123	96	74	56	40	29	15
150001 to 500000	1250	715	345	200	156	119	90	64	40	29	15
500001 and over	1250	715	435	244	189	143	102	64	40	29	15

*Indicates one hundred percent inspection. If sample size exceeds lot size, perform one hundred percent inspection.

Accept the lot represented on zero nonconforming characteristics and reject the lot represented on one or more nonconforming characteristics for all inspection levels.

MIL-DTL-51193D

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER
3.5	Filter, gas, 10 cfm, M18A1			5-19-2300
CATEGORY	CHARACTERISTIC	SAMPLING AND ACCEPTANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD
Critical				
1	Leakage	100 percent inspection	3.5	4.3.6.2
Major				
101	Air flow resistance	100 percent inspection	3.4	4.3.6.1
102	Components and materials correct	Table II, level VII	3.1.	VI
103	Components correctly assembled	Table II, level VII	3.2	VI
104	Overall dimensions correct	Table II, level VII	3.1	CE
105	Workmanship	Table II, level VII	3.10	VI
Minor				
201	Marking correct and legible	Table II, level IX	3.1	VI
202	Protective finish correct	Table II, level IX	3.1	VI

NOTES:

CE - Commercial inspection equipment
 VI - Visual inspection

MIL-DTL-51193D

4.3.6 Tests.

4.3.6.1 Air flow resistance. The pressure drop across the filter shall be in accordance with 3.4 and shall be determined at the rated air flow. The up- and down-stream static pressure measuring tubes shall be as close as possible to the filter and shall not be on a section of duct that has a changing cross sectional area. Test for air flow resistance as follows:

- (a) Connect the filter to a source of forced air.
- (b) Set the flow of air through the filter to 10 scfm
- (c) Record the barometric pressure.
- (d) Measure and record the air stream temperature.
- (e) Determine and record the difference in static pressure head up-stream of the filter to that down-stream of the filter. NOTE: If using test parameters different than those stated in 3.4, calculate and record the air flow resistance $\Delta P(\text{cal})$ using the equation below to correct test measurements to standard conditions.

$$\Delta P(\text{cal}) = \frac{P(\text{test}) \times \Delta P(\text{measured}) \times 86.2}{(460 + T)^{1.768}}$$

$\Delta P(\text{cal})$ - Air flow resistance corrected to standard conditions in inches of water gage (iwg)

$P(\text{test})$ - Barometric pressure at time of test in mm Hg

$\Delta P(\text{measured})$ - Value recorded from test measurement (iwg)

T - Temperature of air stream flowing through filter in degrees F

If $\Delta P(\text{cal})$ is more than the air flow resistance stated in 3.4, the filter shall be rejected.

4.3.6.2 Leakage. Position the filter to be tested rigidly with the long axis in the vertical position. Connect the filter to a source of forced air and place a mixing chamber at the influent side of the filter. Regulate the air flow from the blower to 2.0 scfm. Introduce R-134a or R-12 into the intake of the blower; monitor and maintain a concentration of 1000 ppm by volume of R-134a or R-12 in air at an air flow of 2.0 scfm on the influent side of the filter at the proper temperature and relative humidity for the specified period of time (see 3.5). Leakage shall be in accordance with 3.5 and shall be determined using a suitable leak detector (see 6.5) for sampling and detecting R-134a or R-12 at the effluent side of the filter. Purge the filter by passing fresh air in the reverse direction of that indicated above through the filter at 10 scfm for 1 minute. Keep the exposure of the filter to air to a minimum. The air flow time for leakage should not exceed 3 minutes.

4.3.6.3 Moisture content of gas filter. The filters shall meet the moisture content specified in 3.3 when the moisture content of the carbon is determined in accordance with ASTM D 2867,

MIL-DTL-51193D

Oven-Drying Test Method, except that the oven temperature shall be $103^{\circ}-107^{\circ}\text{C}$ and the drying time shall be 3 hours. If the moisture content of the carbon exceeds the requirement, the filters represented by the samples shall be considered unacceptable. Filters not meeting the moisture requirement shall be dried by passing contaminant free air at a temperature not to exceed 100°C through the filters. After drying, two filters shall be chosen at random and disassembled. The moisture content of the carbon from these filters shall be redetermined in accordance with ASTM D 2867, Oven-Drying Test Method, except that the oven temperature shall be $103^{\circ}-107^{\circ}\text{C}$ and the drying time shall be 3 hours.

4.3.6.4 Rough handling. Each sample unpackaged filter shall be positioned and clamped on a steel movable plate. The plate shall measure 30 by 30 inches and have a total weight of 240 ± 20 pounds including the holding clamps. When the filter is securely clamped in place, there shall be no distortion of the frame or body of the filter. The steel movable plate and filter shall be raised and let fall (free) $3/4 \pm 1/8$ inch onto a steel base plate at the rate of 200 drops per minute for 15 ± 0.1 minutes. The steel base plate shall be part of the apparatus and shall be firmly anchored to a concrete floor capable of absorbing the impact of the vertical vibrations. The test shall be performed at a room temperature of 70 ± 25 F. Throughout the test the filter shall remain in a firm position. Filters may be padded or blocked where clamps press against the side or top of the frame, but not the bottom, to prevent distortion of the filter. The movable steel plate must be parallel to the base plate at all times.

4.3.6.5 DMMP value (destructive). The DMMP value shall be determined by the Government laboratory in accordance with 3.7 using the Q223 tester (Drawing 136-41-1755).

4.3.6.6 CK value (destructive). The CK value shall be determined by the Government laboratory in accordance with 3.8 using the Q223 tester.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

MIL-DTL-51193D

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The gas filter covered by this specification is intended to be used as a component of NBC filtration systems in military vehicles.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- (a) Title, number, and date of this specification.
- (b) Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1).
- (c) First article:
 - (1) Time allowed for contractor submission of samples for Government test and evaluation after award of contract when testing is performed by the Government.
 - (2) Name and address of test facility and shipping instructions when testing is performed by the Government.
 - (3) Time required for the Government to notify the contractor whether or not to proceed with production.
- (d) Packaging requirements.
- (e) Additional identification or marking requirements, if required, must be in the contract and cite the identification method and responsibility for the items affected, such as test units, components, serial numbers, Julian date, lot numbers, etc.

6.3 DMMP value and CK value tests. Samples for these tests shall be forwarded by the contractor, together with DD Form 1222, to Director, U.S. Army Edgewood, Research, Development and Engineering Center, ATTN: SCBRD-ENM-N, Building E5165, Aberdeen Proving Ground, MD 21010-5423.

6.4 Submission of alternative inspection provisions. Proposed alternative inspection provisions should be submitted by the contractor to the procuring contracting officer for evaluation and approval by the technical activity responsible for preparation of this specification.

6.5 Leakage detector. The halide leak detector, model F1000, manufactured by Nuclear Consulting Services, Inc. has been found suitable for this purpose. When using this detector, the presence of high vapor pressure halogenated contaminants in the refrigerant could interfere with the filter leak test, resulting in false indications of filter leakage. Should false leakage in-

MIL-DTL-51193D

dications be suspected, the refrigerant should be checked for the presence of such contaminants.

6.6 Changes from previous issues. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

6.7 Subject term (key word) listing.

CK (cyanogen chloride)
DMMP
Filtered air
Gas filter
R-12 (dichlorodifluoromethane)
R-134a (1,1,1,2 tetrafluoroethane)
Toxic gas filter

Custodian:

Army - EA

Preparing activity:

Army - EA

Project No. 4240-A223

CONTRACT DATA REQUIREMENTS LIST

DD FORM 1423 (MECHANIZED)

CATEGORY: MISC SYSTEM/ITEM: M18A1 GAS FILTER
TO CONTRACT/PR: C29CABXX

1. SEQUENCE NUMBER	14. DISTRIBUTION	DRFT/REG/REPRO COPIES
2. TITLE OF DATA ITEM		
3. SUBTITLE		
4. DATA ITEM NUMBER		
5. CONTRACT REFERENCE		
6. TECHNICAL OFFICE	7. DD 8. APP 9. DIST STATEMENT	
	250 CODE REQUIRED	
10. FREQUENCY	11. AS OF DATE	15. TOTAL:
12. DATE OF 1ST SUBMISSION	13. DATE OF SUBSEQUENT SUBMISSION	
16. REMARKS		

1. A001	14. SEE ADDRESS CODE	/ /
2. ENGINEERING CHANGE PROPOSAL (ECP)	DISTRIBUTION	/ /
3. *	ATTACHED	/ /
4. DI-CMAN-80639B		
5. MIL-STD-973		
6. AMSSC-HB-ADM(RI)	7. LT 8. - 9.**	
10. ASREQ	11. ---	15. TOTAL 0/ 0/ 0
12. ASREQ	13.	

16. REMARKS

ECP SHORT FORM SHALL BE USED FOR THE SUBMISSION AND PROCESSING OF ALL CLASS II ENGINEERING ACTIONS. **DISTRIBUTION STATEMENT WILL BE ASSIGNED AND IMPLEMENTED BY THE DOD CONFIGURATION MANAGER.

1. A002	14. SEE ADDRESS CODE	/ /
2. REQUEST FOR DEVIATION (RFD)	DISTRIBUTION	/ /
3.	ATTACHED	/ /
4. DI-CMAN-80640B		
5. MIL-STD-973		
6. AMSSC-HB-ADM(RI)	7. LT 8. - 9.**	
10. ASREQ	11. ---	15. TOTAL 0/ 0/ 0
12. ASREQ	13.	

16. REMARKS

**DISTRIBUTION STATEMENT WILL BE ASSIGNED AND IMPLEMENTED BY THE DOD CONFIGURATION MANAGER.

1. A003		14.	
2. REQUEST FOR WAIVER (RFW)		SEE ADDRESS CODE	/ /
3.		DISTRIBUTION	/ /
		ATTACHED	/ /
4. DI-CMAN-80641B			
5. MIL-STD-973			
6. AMSSC-HB-ADM(RI)	7. LT 8. - 9.**		
10. ASREQ	11. ---	15. TOTAL	0/ 0/ 0
12. ASREQ	13.		
16. REMARKS			
**DISTRIBUTION STATEMENT WILL BE ASSIGNED AND IMPLEMENTED BY THE DOD CONFIGURATION MANAGER.			

1. A004		14.	
2. NOTICE OF REVISION (NOR)		SEE ADDRESS CODE	/ /
3.		DISTRIBUTION	/ /
		ATTACHED	/ /
4. DI-CMAN-80642B			
5. MIL-STD-973			
6. AMSSC-HB-ADM(RI)	7. LT 8. - 9.**		
10. ASREQ	11. ---	15. TOTAL	0/ 0/ 0
12. ASREQ	13.		
16. REMARKS			
THE CONTRACTOR SHALL PREPARE AND SUBMIT A NOR FOR EACH DRAWING, ASSOCIATED LIST, OR OTHER REFERENCED DOCUMENT WHICH REQUIRE REVISION AFTER ECP APPROVAL. **DISTRIBUTION STATEMENT WILL BE ASSIGNED AND IMPLEMENTED BY THE DOD CONFIGURATION MANAGER.			

ALL THE ABOVE MAY BE SUBMITTED TO:

COMMANDER
U.S.ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND (SBCCOM)
ATTN: AMSSC-HB(RI),CDE Quality Cell
ROCK ISLAND,IL 61299-7390

1. A005		14.	
2. SPECIAL INSPECTION EQUIPMENT DESCRIPTIVE DOC.		AMSSC-HB (RI)	/ 1/
3. AIE DESIGN DOCUMENTATION			/ /
		QAR	/ /
		CO (LT ONLY)	/ /
4. DI-QCIC-81006			
5. SECTION E			
6. AMSSC-HB-ADM(RI)	7. XX 8. A 9. N/A		
10. ONE/R	11.N/A	15. TOTAL	0/ 1/0
12. **	13.WHEN REV.		
16. REMARKS			
*BLOCK 4: DO NOT ADDRESS PARAGRAPHS 10.1, 10.2,10.4.1(f) AND 10.4.2. IGNORE ALL REFERENCE TO THE WORD "SPECIAL" IN DID.SUBMIT FOR ALL TESTS			

AND ALL CRITICAL, SPECIAL AND MAJOR CHARACTERISTICS IN SPECIFICATION OR QAP. UNLESS OTHERWISE SPECIFIED, INSPECTION EQUIPMENT INCLUDES STANDARD MEASURING AND TEST EQUIPMENT AND/OR COMMERCIAL OFF THE INSPECTION/TEST EQUIPMENT. **BLOCK 12:SUBMIT 45 DAYS PRIOR TO FA,OR PRODUCTION,IF FA IS WAIVED. THE GOVERNMENT WILL RESPOND WITHIN 45 DAYS OF RECEIPT OF ORIGINALS AND REVISIONS. REVISIONS ARE TO BE SUBMITTED WITHIN 10 DAYS OF RECEIPT OF GOVERNMENT RESPONSE. IF DOCUMENTATION WAS APPROVED ON PRIOR CONTRACT AND NO CHANGES WERE MADE, SUBMIT ONLY EVIDENCE OF PRIOR APPROVALS.

All submissions should be presented in the following formats via e-mail or on PC compatible CD-ROM,100MB Iomega ZIP disks, or 3.5"high density floppy discs

Textual Information	MS Office compatible (i.e. doc.xls,rtf)
Technical Drawings	Windows Metafile,Bitmap,JPEG, DesignCAD 2D or AutoCAD formats
Illustrations/Photos	Windows Metafile,Bitmax,JPEG (i.e.WMF,BMP,JPG,GIF)

Files may be compressed using ZIP program.

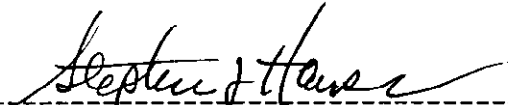
WARNING: Large packages may cause delays in delivery using mail internet.

Email subject line must contain end item nomenclature.

email: holdenr@ria.army.mil

Postal:US ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND(SBCCOM)

ATTN:AMSSC-HB-ADM(RI), CDE QA CELL,BLDG.62,ROCK ISLAND,IL 61299-7390



APPROVED BY: STEPHEN J HANSEN, SDMO, AMSTA-AR-QAD

DATE: 04/01/1999